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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,147	12/28/2001	Young-Goo Lee	SEC.875	5226
20987	7590	06/06/2005	EXAMINER	
VOLENTINE FRANCOS, & WHITT PLLC ONE FREEDOM SQUARE 11951 FREEDOM DRIVE SUITE 1260 RESTON, VA 20190			GUERRERO, MARIA F	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/029,147	LEE ET AL.	
	Examiner	Art Unit	
	Maria Guerrero	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the Amendment filed March 15, 2005.

Status of Claims

2. Claims 1-19 are pending.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, 7-8, and 13-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Okada (U.S. 6,242,337).

Okada shows depositing a layer on a wafer and planarizing the layer by CMP (Fig. 2E-2F, col. 4, lines 15-27). Okada discloses the resulting planarized layer comprising a uniform region of uniform thickness (uniformly planarized) extending along

a wafer surface and a non-uniform region of non-uniform thickness (non-uniformly planarized) corresponding to an upper sidewall of the wafer (Fig. 2F). Okada shows the non-uniform thickness being greater than the uniform thickness (Fig. 2F). Okada describes coating a photoresist and exposing the non-uniform region of the planarized layer and at least a portion of the uniform region (Fig. 2G, col. 4, lines 28-35). Okada shows etching at least the exposed non-uniform region of the planarized layer and at least a portion of the uniform region, removing the photoresist, and forming a planarized pattern layer (Fig. 2G-2H, col. 4, lines 23-41).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (U.S. 6,242,337) in view of Liu et al. (US 6,287,961).

6. Okada does not specifically describe the employing chemical vapor deposition process. However, Liu et al. is cited as evidence to show that the use of chemical vapor deposition process is conventional in the art (col. 8, lines 20-35).

7. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Okada reference by including the use of chemical

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vapor deposition because Liu et al. suggested that chemical vapor deposition process is preferably among other process in microelectronics fabrication (Liu et al., col. 8, lines 30-35).

8. Claims 1-2, 4-8, 10-14, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (U.S. 6,534,384) in view of Jones et al. (U.S. 6,117,778) (cited by Applicant) and Applicant admitted prior art.

Nakano et al. teaches depositing a layer on a wafer and polishing (planarizing) the layer (Fig. 2A, col. 6, lines 58-65). Nakano et al. discloses the resulting planarized layer comprising an uniform region of uniform thickness extending along a wafer surface and a non-uniform region of non-uniform thickness corresponding to an upper sidewall of the wafer (Fig. 2A). Nakano et al. discloses coating a mask and exposing the non-uniform region of the planarized layer and at least a portion of the uniform region (Fig. 1(h), col. 7, lines 1-25). Nakano et al. shows wet etching at least the exposed non-uniform region of the planarized layer and at least a portion of the uniform region, removing the mask, and forming a planarized pattern layer (Fig. 1(h)-(j), 2C-2D, col. 7, lines 1-42, col. 9, lines 1-5, 20-22). Nakano et al. teaches forming a pattern layer comprising a portion of the uniform region of the planarized layer (Fig. 1(j), 2C-2D). Nakano et al. shows that the masking could be performed with a photoresist (Fig. 1(h), col. 9, lines 20-26).

Nakano does not specifically show depositing the single and continuous layer by chemical vapor deposition and the non-uniform thickness being greater than the uniform thickness. However, Applicant admitted prior art describes depositing the single and

continuous layer by chemical vapor deposition. Applicant admitted prior art shows planarizing the deposited layer to form a uniform region and a non-uniform region having a thickness greater than the uniform region (Fig. 1-2).

Nakano et al. is silent about the steps of removing a portion of the coated photoresist layer and stripping the remaining portion of the coated photoresist layer. However, Jones et al. shows coating a photoresist layer on the deposited layer, removing a portion of the coated photoresist layer, stripping a remaining portion of the coated photoresist layer, and planarizing the uniform region of the deposited layer (Fig. 1B-1F, col. 4, lines 38-55).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Nakano et al. reference by including the conventional steps of depositing the single and continuous layer by chemical vapor deposition, planarizing the deposited layer to form a uniform region and a non-uniform region having a thickness greater than the uniform region, removing a portion of the coated photoresist layer and stripping the remaining portion of the coated photoresist layer as taught by Applicant admitted prior art and Jones et al. because Nakano et al. suggested that a photoresist could be employed (Nakano et al., col. 9, lines 20-26) and in order to provide a process that would prevent peeling-off during device manufacturing operation and would increase the number of acceptable chips, which could be made of each wafer (Nakano et al., col. 9, lines 30-35; Jones et al., col. 2, lines 7-10).

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9. Claims 3, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano et al. (U.S. 6,534,384), Jones et al. (U.S. 6,117,778), and Applicant admitted prior art as applied to claims 1-2, 4-8, 10-12 and 17-19 above, and further in view of Liu et al. (U.S. 6,287,961).

Regarding claims 3, 9 and 15, the combination Nakano et al., Jones et al., and Applicant admitted prior art does not specifically show the photoresist layer having the specific thickness as claimed. However, Liu et al. shows forming a photoresist layer having a thickness of from about 7000 to about 15000 angstroms as well known in the art (col. 9, lines 38-55).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination Nakano et al., Jones et al. and Applicant admitted prior art by specifying the thickness of the photoresist layer as taught Liu et al. in order to assure optimal dimensional stability (Liu et al., col. 9, lines 50-55).

Response to Arguments

10. Applicant's arguments filed September 21, 2004 have been fully considered but they are not persuasive. Claims 1-2, 7-8, and 13-14 stand rejected in view of Okada.

Applicant's arguments with respect to claims 17-19 and Nakano et al. reference have been considered but are moot in view of the new ground(s) of rejection.

Applicant argued that Okada et al. shows a multi-layer stack structure and these elements do not constitute the single and continuous layer recited. However, Okada et al. shows depositing a single and continuous layer and planarizing to remove a portion

of the layer (Fig. 2E-2F, col. 4, lines 15-27). Okada et al. anticipated the claims because there is nothing in the claims suggesting that other layer could not be present on the wafer before depositing the single and continuous layer.

Regarding the expression "single and continuous", it has been interpreted as broadly as their terms reasonably allow because there is not evidence of any special definition in the specification. During examination, the claims must be interpreted as broadly as their terms reasonably allow. > In re American Academy of Science Tech Center, F.3d, 2004 WL 1067528 (Fed. Cir. May 13, 2004)(The USPTO uses a different standard for construing claims than that used by district courts; during examination the USPTO must give claims their broadest reasonable interpretation.) < This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) >; Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1372, 69 USPQ2d 1857 (Fed. Cir. 2004).

Furthermore, the transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., > Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003) ("The transition comprising' in a method claim indicates that the claim is open-ended and allows for additional steps."); < Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim

language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.); *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts").

In addition, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 571-272-1837.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 23, 2005

Maria Guerrero
MARIA F. GUERRERO
PRIMARY EXAMINER